

**U.S. Department of
Homeland Security**

**United States
Coast Guard**



Commanding Officer
U.S. Coast Guard
Sector Southeastern New England

1 Little Harbor Road
Woods Hole, MA 02543
Phone: 508-457-3219
Fax: 508-457-3236-
Email: Edward.G.LeBlanc@uscg.mil

16000
May 9, 2007

Mr. Gordon Shearer
Chief Executive Officer
Weaver's Cove Energy, LLC
One New Street
Fall River, MA 02720

Dear Mr. Shearer

I reviewed the information Weaver's Cove submitted regarding its smaller liquefied natural gas (LNG) tanker proposal, including the original Letter of Intent (LOI) of May 12, 2004; the Federal Energy Regulatory Commission's (FERC) Final Environmental Impact Statement of May 2005; FERC's approval order of July 15, 2005; the Weaver's Cove amended LOI of February 2, 2006; its Environmental Assessment of the Use of Smaller Ships of November 2006, its Waterway Suitability Assessment of November 22, 2006; and its Additional Smaller LNG Ship Design, Navigational and Operational Data report of February 21, 2007. Enclosure (1) is a review of the material submitted, specifically, the smaller tanker proposal.

Among other issues described in enclosure (1), the doubling of tanker transits and the slower movement of tankers through the waterway segment between Borden Flats and the proposed Weaver's Cove facility presents navigation safety and security challenges and environmental impacts beyond those addressed in the original LOI. Accordingly, before a Letter of Recommendation (LOR) can be issued, the Coast Guard will conduct supplemental reviews, including an environmental review, and afford an opportunity for public comment. Additionally, given the need for a full understanding of security resource and coordination impacts, I will require workshop discussions with state and local law enforcement and public safety officials to ensure the risks, impacts, resource demands, capabilities, and coordination requirements are well understood and quantified.

In my March 13, 2006, letter to Weaver's Cove, I summarized that the transit through the new and old Brightman Street Bridges was 'an extraordinary navigational maneuver' that left 'no margin for error'. The recent submission of vessel transit modeling does not include either Marine Safety International's or the individual marine pilot's conclusion that smaller LNG tankers can be safely navigated through this waterway on a consistent, repeatable basis.

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Based upon my review, it appears that the waterway may not be suitable for the type and frequency of LNG marine traffic contained in your smaller tanker proposal. This review is a preliminary assessment and does not constitute final agency action since analysis required by the National Environmental Policy Act (NEPA) has not been completed. The final determination of suitability will be provided in my Letter of Recommendation. Should Weaver's Cove desire to move forward in the Letter of Recommendation process, please advise this office in writing with your specific intentions.

Sincerely,



ROY A. NASH
Captain, U.S. Coast Guard
Captain of the Port
Southeastern New England

Enclosure: (1) Executive Summary

Copy: Commander, First Coast Guard District (d, dp, dl)
Commander, Atlantic Area (Am)
Commandant (CG-3PSO)
Federal Energy Regulatory Commission
Mass and RI Congressional delegations
Mayor, City of Fall River
Applicable state and local agencies

EXECUTIVE SUMMARY

Weaver's Cove LLC proposes to import Liquefied Natural Gas (LNG) via tanker to its proposed waterfront facility in Fall River, MA. Per 33 CFR 127, applicable to Waterfront Facilities Handling Liquefied Natural Gas and Liquefied Hazardous Gas, special precautions are required in connection with transport of this commodity through the navigable waterways of the U.S.

In its initial Letter of Intent (LOI) dated May 12, 2004, Weaver's Cove proposed employing tankers typically 975' long by 145' beam by 37.5' draft. These tankers would make about 60 deliveries each year. (This is commonly referred to as the "larger tanker" proposal.) On August 10, 2005, President Bush signed the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Pub. L. 109-59. Section 1948 of the Act stated that "no Federal funds shall be obligated or expended for the demolition of the existing Brightman Street Bridge..." The practical effect of the Act is that the old Brightman Street Bridge will essentially remain in place. Subsequent to the Act, Weaver's Cove submitted an amended LOI on February 2, 2006, proposing to use smaller tankers of approximately 725' long by 82' beam by 36' draft. These tankers would make about 120 to 130 deliveries each year. (Commonly referred to as the "smaller tanker" proposal.) A submission addressing navigability of small tankers using modeling was submitted on February 21, 2007, suggesting a range of tanker design dimensions that would include vessels up to 750' long by 85' beam by 37.5' draft.

In short, of the entire proposed transit route, the area of highest apparent potential consequence in the case of accident or incident—the Fall River/Somerset metropolitan area—is also the area of highest risk to navigation safety, and presents a unique challenge to water-borne security. The sum of measures, mitigations and precautions described in the Weaver's Cove proposal do not appear to sufficiently reduce the risks to a point where the waterway could be declared suitable for the proposed cargo transit. Listed below are key factors affecting the suitability of the waterway:

- Proximity of the waterway to population concentrations.
- Proximity of the Brightman Street Bridges to each other.
- Dimensions and condition of the old Brightman Street Bridge.
- Channel offset between bridges.
- Severe turn required beneath and just north of the Braga Bridge
- Close proximity of the channel to Fall River piers, infrastructure (e.g., I-195/Braga Bridge) and USS MASSACHUSETTS museum complex.
- Prolonged, frequent exposure of the Fall River metropolitan region to safety and security risks during the transits.
- Expected delays to marine and vehicular traffic associated with frequent LNG tankers navigating through or under five bridge crossings.
- Conditions favorable to inbound and outbound transits are severely limited by vessel draft, tidal state, wind, visibility, and infrastructure.

After considering the totality of proposed LNG marine traffic through this waterway, and acknowledging the substantial safety features and navigation capability of the proposed tankers, pilots, and accompanying tugs, the waterway continues to present a substantial challenge to the safe navigation of hazardous cargo, and the concerns I expressed in my letter to Weaver's Cove of March 13, 2006, remain.

The aggregate of navigation safety factors--daylight, infrastructure, vessel dimensions, controlling depth, weather, visibility, tidal conditions, bridge operations, and human factors—which must be aligned to provide a safe transit through the waterway, particularly that portion of the waterway from Borden Flats, under the Braga Bridge, and through the old and new Brightman Street Bridges, are not measurably improved in submissions since the Weaver's Cove submittal of February 2, 2006. Safety margins are not quantified in the Weaver's Cove proposal in addressing the navigation safety risks presented through this complex waterway, for the proposed vessel transits.

Consequently, to ensure the Coast Guard has a comprehensive understanding of safety, security and environmental impacts of the proposed marine transport of LNG into Fall River via smaller tankers with more frequent deliveries, workshop discussions with state and local law enforcement and public safety officials, a supplemental review, and an opportunity for public comment are necessary.

A. **DEFINITIONS:**

1. **Bare Steerageway:** The minimum speed at which a ship's rudder remains effective in influencing the movement of the vessel; generally between two and three knots per hour of speed.
2. **Coast Guard:** Coast Guard Captain of the Port, Southeastern New England, unless otherwise noted.
3. **Controlling Depth:** As defined by the National Ocean and Atmospheric Administration (NOAA), the least depth in the navigable parts of a waterway, governing the maximum draft of vessels that can enter.
4. **LNG Tanker, or LNG Vessel, or Tanker:** The Coast Guard assumed the following LNG tanker dimensions for this analysis:
 - (a.) Length: 750.0 feet
 - (b.) Beam: 85.0 feet
 - (c.) Draft: 37.5 feet
5. **Letter of Intent (LOI):** Letter submitted by Weaver's Cove to the Coast Guard on May 12, 2004.
6. **Mean Lower Low Water (MLLW):** The average of the lower low water height of each tidal day, as measured over a 19-year period. MLLW is the reference point from which water depths are determined and plotted by NOAA on navigation charts.
7. **m³:** Cubic meters, or meters cubed.
8. **PAWSA:** Ports And Waterways Safety Assessment, the two-day navigation safety risk assessment conducted September 7 and 8, 2004.
9. **Revised LOI:** Letter of Intent submitted by Weaver's Cove to the Coast Guard on February 2, 2006.
10. **Safety and Security Zone:** As described in the FEIS, a moving zone patrolled and enforced by Coast Guard and other law enforcement resources, extending 4000 yards ahead, 2000 yards astern, and approximately 500 yards on each side of an LNG tanker during any transit in the waterway between the entrance to Narragansett Bay and Fall River. Safety and security zones are controlled-access areas per 33 CFR 165.20 and 33 CFR 165.30, respectively.
11. **Sandia Report:** The report published by Sandia National Laboratory, U.S. Department of Energy, in December 2004 and entitled "Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water."

12. **Ship Design Report:** The ship design information provided to the Coast Guard by Weaver's Cove Energy, LLC, via its transmittal letter of February 21, 2007.

13. **Waterway:**

(a.) On NOAA chart 13221, that body of water within 500 yards on either side of an approximately 25.4 nautical mile track-line extending from the center of the Pilot Boarding Area on the "Inbound" portion of the Separation Zone (just east of the "NB" buoy at the entrance to Narragansett Bay) and proceeding in a generally northeasterly direction to the charted navigation channel and through the East Passage of Narragansett Bay, east of Gould Island and east of Prudence Island to a point adjacent to Sandy Point; then easterly towards the Mount Hope Bridge and through Mount Hope Bay to the Taunton River; then up the Taunton River to the proposed Weaver's Cove facility in Fall River, Massachusetts.

(b.) For the purposes of this report, the waterway has been segmented into three geographically distinct areas:

(1.) **Segment One:** From the Narragansett Bay entrance buoy ("NB") north through the East Passage of Narragansett Bay and under the Newport/Pell Bridge to a point adjacent to Sandy Point, Prudence Island. This segment of the waterway is approximately 12.5 nautical miles long.

(2.) **Segment Two:** From Sandy Point, Prudence Island, northeasterly under the Mount Hope Bridge and through Mount Hope Bay to the area known at Borden Flats where the federal channel in Mount Hope Bay intersects with the private channel leading to the Brayton Point power plant. This segment of the waterway is approximately 9.6 nautical miles long, the federal channel in Mount Hope Bay is 400' wide, and dredging is assumed down to -37 feet at Mean Lower Low Water (MLLW).

(3.) **Segment Three:** From Borden Flats northeasterly into the Taunton River, under the Braga Bridge, through the old and new Brightman Street bridges, to the proposed Weaver's Cove facility on the east bank of the Taunton River in Fall River, Massachusetts. This segment of the waterway is approximately 3.3 nautical miles long, 400' wide, and dredging is assumed down to -37' at Mean Lower Low Water (MLLW).

14. **Weaver's Cove:** Depending upon the context in which it is used, may mean either the geographic site where the proposed LNG terminal is to be built, or the corporation proposing the facility, Weaver's Cove Energy, LLC.

B. **ASSUMPTIONS:** In conducting this analysis, the Coast Guard derived these assumptions to “bound” the issue and guide us in our evaluation:

1. **Aids to Navigation:** It is assumed that the aids to navigation improvements proposed by Weaver’s Cove (such as additional buoys, and additional NOAA PORTS (Physical Oceanographic Real Time System) capability) would be installed and operating prior to any tanker transits.
2. **Channel:** It is assumed that the channels in Narragansett Bay, Mount Hope Bay, and the Taunton River will remain in their current configurations, with the exception of depth. The controlling depth of the channels is assumed to be post-dredged depths as indicated in the Weaver’s Cove proposal, i.e., -37 feet MLLW (Mean Lower Low Water).
3. **Dredging:** It is assumed that all dredging as proposed is approved and completed, i.e., the Federal Channel dredged to a controlling depth of -37 feet MLLW, and the turning basin to -41 feet MLLW.
4. **New Brightman Street Bridge:** It is assumed that construction of the new Brightman Street Bridge will be completed as designed (with a 200’ opening) and permitted under Coast Guard Bridge Permit 8-97-1, as amended.
5. **Old Brightman St. Bridge:** Per Section 1948 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) signed into Federal law on August 10, 2005, “no Federal funds shall be obligated or expended for the demolition of the existing Brightman Street Bridge...” Consequently, it is assumed that the Old Brightman Street Bridge will remain in place, in its current configuration (98’ opening, on the west side of the navigation channel), but will not be utilized by routine vehicular traffic, as that traffic will be re-routed to the new Brightman Street bridge once construction is complete and the new bridge opened.

Note: In response to complaints received from two entities regarding the old Brightman Street Bridge, the First Coast Guard District, Boston, Massachusetts, is conducting an investigation in accordance with 33 CFR 116 to determine if the bridge constitutes an unreasonable obstruction to navigation. That investigation does not fall under the purview of the Captain of the Port, and was not considered as part of this analysis.

6. **Range of tide:** Per the National Oceanic and Atmospheric Administration (NOAA), the range of tide between Mean High Water and Mean Low Water at Fall River, Massachusetts, is 4.36 feet, but can vary from as much as 5.41 feet mean spring range of tide to as little as 2.35 feet mean tide level. Range of tide may expand or restrict the available opportunity for sufficient under keel clearance on any given day for an LNG tanker transit.

7. Scope of Coast Guard Review/Analysis:

- a. Weaver's Cove has essentially asked the Coast Guard to review its proposal under two scenarios:

Table 1 – Vessel Dimensions and Frequency of Shipments

| Proposed LNG vessels: | Length (ft) | Beam (ft) | Draft (ft) | Volume (m3) | Frequency of Shipments (annual) |
|--|------------------|-----------------|-------------------|----------------------|--|
| Original LOI: (Letter of May 12, 2004) | 950 | 145 | 37.5 | 145,000 ¹ | 60 port visits (120 transits of the waterway) |
| Amended LOI: (February 2, 2006), as modified by the Ship Design Report (February 21, 2007) and Environmental Assessment of the Use of Small Ships of November 2006 | 750 ² | 85 ² | 37.5 ² | 55,000 | 120-130 port visits (240 – 260 transits of the waterway) |

¹The Ship Design Report uses the figure of 155,000m³ of cargo carrying capacity vice the earlier figure of 145,000 m³ for the larger tankers. The increase in cargo carrying capacity is attributed to refinements in cargo containment design coupled with the reduced space occupied by a newer, smaller, propulsion system and smaller fuel tanks.

²Weavers Cove has proposed a “range of ship sizes” up to and including the dimensions listed here.

- b. Although Weaver's Cove has asked that the suitability of the waterway be evaluated for both the smaller and larger tanker proposals, it is impractical and inappropriate at this time to devote the resources necessary to evaluate a proposal that assumes the old Brightman Street Bridge will be removed or otherwise altered to accommodate larger tankers, as there is no indication that the status quo will change. Consequently, this evaluation is limited only to the proposal for smaller tankers at the higher number of port visits.
8. **Security:** It was assumed that waterside and shoreside security will be provided for both the inbound and outbound transits, and the pierside offload, per the Vessel Transit Security Plans included as appendices G and H, respectively, to the Waterways Suitability Assessment submitted by Weaver's Cove on November 22, 2006.

9. Scheduling:

- a. For the proposed tankers having dimensions up to 750' long x 85' beam x 37.5' draft, the following are some factors that impact the scheduling of a hazardous cargo tanker transit in this waterway:

- (1.) Available daylight (no nighttime transits allowed through the old Brightman Street Bridge).
- (2.) Visibility (no transits in less than two miles visibility along the 25.4 nautical mile transit route).
- (3.) Winds (no transit through the old Brightman Street Bridge when winds exceed 15 knots on the beam).
- (4.) Tides (outbound transit of the old Brightman Street Bridge on a flood tide only).
- (5.) Tidal lift (transits through dredged channel in Mount Hope Bay and the Taunton River on a high tide only) to provide sufficient underkeel clearance (10% of tanker draft).
- (6.) Bridge maintenance periods (the old Brightman Street Bridge has been closed for at least one 14-day period for each of the last several years).
- (7.) Per FERC's approval order Environmental Condition #76, "consideration shall be given to scheduling bridge closures to avoid peak traffic periods."
- (8.) Availability of Federal, state, and local waterside and shoreside security forces.
- (9.) Availability of pilots and tugs.

10. **Transits:** For the purposes of discussing navigation within the waterway, and unless otherwise specified, vessel transits are described in terms of inbound transits, daylight only. (Although future nighttime transits are proposed by Weaver's Cove, the Coast Guard has proposed regulations that would limit all commercial vessel transits through the old Brightman St. Bridge to daylight only due to the complexity of the waterway at the two Brightman Street bridges. This is the current marine practice, being followed voluntarily, by the commercial vessel industry. See the Coast Guard Notice of Proposed Rulemaking, "Regulated Navigation Area: Narragansett Bay, RI and Mount Hope Bay, MA, Including the Providence River and Taunton River", Federal Register, Vol. 71, No. 101, May 25, 2006.) Simultaneous transits of LNG tankers (one outbound, one inbound within Narragansett Bay or Mount Hope Bay at the same time) was not proposed or considered.

11. **Underkeel Clearance:** For planning purposes it is assumed that water depth equal to at least 10% of the tanker's draft would be required under the tanker's keel as it transits the waterway. Per the proposed regulations referenced in sub-paragraph 10 above, the Coast Guard is considering maximum draft measures for Narragansett Bay and Mount Hope Bay.

C. NAVIGATION SAFETY AND SECURITY:

1. Segment One: Transit from the sea buoy through the Narragansett Bay East Passage to Sandy Point (12.5 nautical miles):

- a. The waterway of the lower East Passage between Newport and Jamestown is narrow and congested, and is an area of high consequence should an accident or incident occur with other large vessels or infrastructure. The safety mitigations proposed by Weaver's Cove, many of which are identical to measures currently practiced for transits of Liquefied Petroleum Gas (LPG) to Providence, could adequately address the navigation safety risks, pending further environmental impact analysis commensurate with the proposed smaller tanker and number of transits.
- b. Assessment of security mitigations for this waterway segment pends further analysis to address the more frequent transit of small LNG tankers, particularly during the summer and fall seasons.

2. Segment Two: Transit from Sandy Point through Mount Hope Bay to Borden Flats and the entrance to the Taunton River (9.6 nautical miles):

- a. This segment includes areas of noteworthy infrastructure, including the Mount Hope Bridge and Roger Williams University, and the 400'-wide federal channel in Mount Hope Bay. An accident or incident resulting in a tanker grounding would effectively close Fall River and the Brayton Point and Somerset power plants to commercial marine traffic. However, the safety mitigations proposed by Weaver's Cove, excepting the proposed draft of the LNG tanker (see assumptions), could adequately address the navigation safety risks associated with transiting this portion of the waterway, pending further environmental impact analysis commensurate with the proposed smaller tanker and number of transits.
- b. Assessment of security mitigations for transit through this waterway segment pends further analysis of impacts that may result from doubling the number of transits, per the small LNG tanker proposal.

3. Segment Three: Transit from Borden Flats to the Weaver's Cove site, Fall River, Massachusetts (3.27 nautical miles):

- a. This segment can be characterized as narrow, winding, and in close proximity to significant populations and infrastructure. The close proximity to populations include both Fall River and Somerset, Massachusetts; the infrastructure includes a 400 foot wide Federal Channel (dredged to -37 feet) which serves the Brayton Point Power Plant, and Somerset (formerly Montaup) Power Plant opposite the Weaver's Cove site, and passes under the fixed (I-95) Braga Bridge, and through two bascule (Brightman Street) bridges along this waterway segment.

- b. The September 2004 Ports And Waterways Safety Assessment (PAWSA) identified the Taunton River in the Fall River metropolitan region (to include Somerset) as an area of “very high absolute risk” in terms of consequences from a hazardous materials release. Consensus could not be reached when participants were asked if current and/or future mitigations could balance that risk. It is important to note that the 2004 PAWSA assumed:
- (1) The old Brightman Street Bridge would be removed before LNG tanker transits would take place; and
 - (2) LNG tanker deliveries to Fall River would be about one per week.

Those assumptions are no longer accurate or conservative, and the presence of an additional bridge, and more frequent proposed deliveries, elevates the risk of an accident with infrastructure.

- c. As a tanker approaches the Braga Bridge from the south, it must turn sharply to port while passing under the bridge, in close proximity to piers and the USS MASSACHUSETTS. Conversely, when approaching the Braga Bridge from the north, a tanker must head directly towards the USS MASSACHUSETTS and the adjacent commercial piers, and then turn sharply to starboard to pass parallel to the USS MASSACHUSETTS and underneath the Braga Bridge. There is minimal room for tugs and escort vessels to react to a loss of power or steering error under the Braga Bridge.
- d. On the approach to the old and new Brightman Street Bridges, a new situation is presented, including adjacent, nearly parallel bascule bridges 1100 feet apart, with openings that are navigationally off-set approximately one ship’s width along the revised channel. This configuration results in a compound navigational challenge when considering the proposed tanker’s length, breadth, and draft dimensions, the number of assist tugs, and the coordination of security forces. Maneuvering safely and repeatedly through and between both bridges needs to be virtually certain for the proposed frequent hazardous cargo vessel transits. The proximity and arrangement of the old and new Brightman Street Bridges to each other presents a high risk of a vessel striking either or both bridges. Specifically, not only is the old 98-foot wide bridge narrow relative to the 85-foot wide tankers proposed, but a transiting vessel must stop forward momentum to avoid striking the new bridge in a very short distance. Once stopped, the vessel must be moved sideways approximately one hundred feet with tugs and/or bow and stern thrusters, to become aligned in the channel for passage through the opening of the new bridge. Once aligned with the new bridge opening, the vessel must regain steerageway and transit through, and proceed approximately 0.7 miles to the Weaver’s Cove berth. A safe transit through these two off-set bridges requires numerous mechanical and behavioral factors to succeed (not fail). Repeatable safe transits are dependent upon the highest probabilities of success for each of the component risk factors. The navigational maneuver that must be successfully executed in each transit to avoid an adverse striking of either bridge is considered very complex. The following risk factors, at a minimum, are deemed relevant to a safe transit:

- (1) Probability of no helmsman error resulting in a bridge allision.
 - (2) Probability of no engine order telegraph operator error resulting in a bridge allision.
 - (3) Probability of no conning error by pilot(s)/master resulting in a bridge allision.
 - (4) Probability of no human error by ship's bow and/or stern thrusters' operator.
 - (5) Probability of no human error by any of three tug operators that adversely affect control of the tanker.
 - (6) Probability of no mechanical error in any of the three tugs adversely affecting control of the tanker while transiting a bridge.
 - (7) Probability of no coordination error between pilots when two pilots are in the wheelhouse, adversely affecting safety during bridge transits.
 - (8) Probability of no ship steering failure resulting in bridge allision.
 - (9) Probability of no loss of ship's main propulsion resulting in a bridge allision.
 - (10) Probability of accurate vessel draft and under-keel clearance calculation for transit without grounding in the dredged channel.
 - (11) Probability of clear channel without obstructions.
 - (12) Probability that favorable wind predictions are accurate and conservative for safe bridge transit, such that gusts do not set the ship onto a bridge while transiting.
 - (13) Probability of no mechanical failure of bridge opening systems on the old bridge.
 - (14) Probability of no mechanical failure of bridge opening systems on the new bridge.
 - (15) Probability of no electrical failure to bridge operating system (old bridge).
 - (16) Probability of no electrical failure to bridge operating system (new bridge).
 - (17) Probability of no bridge operator error in opening the bridge fully (old bridge).
- e. While the ability of an LNG tanker to withstand the impact of alliding with the fendering system (or indeed, with either Brightman Street Bridge) without suffering major damage is not in doubt, an LNG tanker could damage the fendering system and/or either Brightman Street Bridge to the extent that the bridge and/or the waterway may be closed to all traffic for a prolonged period of time. In such a case, whether the LNG tanker is damaged or not, the navigational effort to maneuver the tanker (presumably stern first) out of the Taunton River and Mount Hope Bay, to Narragansett Bay, would be extraordinary. Note that there is no practical turnaround option available in the 400' wide federal channel north of the Mount Hope Bridge for ships of this length, except in the turning basin adjacent to the Somerset (formerly Montaup) Power Plant facility, opposite the Weaver's Cove site. Such a maneuver, even in a safely aborted bridge transit, may cause inordinate delays to vessel and vehicular traffic, and may cause an arduous, indeterminable burden on security resources enforcing a security zone.
- f. In its smaller tanker proposal, Weaver's Cove indicated that it would like to use vessel drafts up to the depth of water after dredging (37 feet), or even the draft specified in its larger tanker proposal (37.5 feet), with a goal of optimizing the cargo

carriage capacity as the ship design is further refined. Weaver's Cove also indicates a design draft of 34 feet and a scantling draft of 36 feet for modeling, and suggests that changes in these drafts do not significantly affect modeling outcomes. The Coast Guard fully expects that the depth of water under the keel of a ship in a dredged channel, particularly in a relatively narrow river, will in fact make a difference in ship-handling, and margins of safety. A suggestion that the difference in vessel drafts between 34 feet and 37.5 feet in a 37 foot deep channel is insignificant was not supported.

- g. From approximately one mile south of the Braga Bridge, and continuously to the vicinity of the proposed Weaver's Cove site, the federal navigation channel lies in close proximity to downtown Fall River, and within 500- to 1,000-meters from this channel lie population density areas of 1,000 persons per square mile to over 9,000 persons per square mile, as documented in Figure 3-8 of the Weaver's Cove Waterway Suitability Assessment of November 22, 2006. The slow transit speed over an extensive stretch of waterfront, coupled with the close proximity to the shore line through this populated waterway segment creates a security challenge for Coast Guard and other waterborne assets. Similarly, the need for substantial shore-side patrols to protect the proposed frequently transiting vessels from relatively close shore-side buildings, warehouses, vessels and bridge exposures needs further assessment by supporting agencies to adequately address the small tanker/more frequent delivery proposal.
- h. While approaching and proceeding through the Brightman Street bridges, the tanker would proceed at bare steerageway with assistance from one-to-three tugs, and would at one or more points be completely stopped between the bridges while it moves transversely to align itself with the next bridge opening. This procedure might be described as a "locking through" of the vessel between the old and new bridges, and where towing and security forces need to be most effective to mitigate limited maneuverability of the vessel. This 'locking through' would occur up to 260 times per year under this small tanker proposal, and occurs in the waterway segment having the greatest population concentration along the 25.4 nautical mile inland route, and in the vicinity of significant infrastructure.
- i. The Vessel Transit Security Plan, Upper Bay (Appendix G to the Waterways Suitability Assessment of November 22, 2006) does not specifically quantify and account for the additional waterside and shoreside resources that will be required to secure the old Brightman Street Bridge.
- j. At Battleship Cove, the USS MASSACHUSETTS museum ship hosts approximately 90,000 visitors annually, including approximately 24,000 students and scouts who sleep aboard the vessel for various functions throughout the year. This vessel is approximately 95 feet outside of the channel. A recommendation or determination on the disposition of visitors to Battleship Cove while an LNG tanker passes is not included in the proposal.

- k. Except to say that the tanker may remain at the pier, the proposal does not adequately describe the contingency plans and impacts of maintaining adequate government water-borne security should an LNG vessel remain indefinitely at the Weaver's Cove facility due to a breakdown of the vessel, damage to the bascules of either Brightman Street bridge, or unfavorable tide and weather parameters.
- l. Assessment of security forces and mitigations for secure transit through this waterway segment pend further identification and analysis of impacts resulting from doubling the number of vessel transits in the small LNG tanker proposal to 130 ship arrivals, and 260 transits per year. This would include assessment of security agreements, capabilities, training, and capacities of state and local authorities, noting the near proximity of the transit route to populations, buildings, and infrastructure on the Fall River and Somerset waterfronts.

4. Security burden:

- a. The security burden of boarding vessels offshore and escorting them through near-shore waters and 25.4 miles of inland waters may involve four hours or more from the time when the vessel begins its transit from the off-shore boarding location. Once moored, security presence continues for the expected 24-hour off-loading period. Upon completion, the escort flotilla would begin a moving security zone for the outbound voyage, another four hours or so. Outbound transits depend on conditions being favorable for transit.
- b. The limitations of daylight, favorable wind conditions, visibility, tidal lift, avoidance of commuter hour traffic, and external demands on security resources present challenges for scheduling and coordinating security resources. The inability to control several environmental factors appears to preclude accurate forecasting and projecting of a relatively well-defined schedule, with adequate contingencies to mitigate the uncertainty of demands on security resources.

D. ENVIRONMENTAL IMPACT:

1. **Transit from the sea buoy through the Narragansett Bay East Passage to Sandy Point and to Borden Flats and the entrance to the Taunton River:** The environmental impact of the revised proposal using smaller tankers at more frequent delivery intervals cannot be adequately assessed within the current Environmental Impact Statement (EIS) published by FERC. Consequently, the Coast Guard will require further environmental review, including assessment of impacts to vehicular traffic over the Newport and Mount Hope bridges.
2. **Transit from Borden Flats to the Weaver's Cove site, Fall River, Massachusetts:** The environmental impact of the revised proposal using smaller tankers at more frequent delivery intervals cannot be adequately assessed within the current Environmental Impact Statement (EIS) published by FERC. Consequently, the Coast Guard will require further environmental review, including assessment of impacts to vehicular traffic over the Braga Bridge. Additionally, the following items surrounding the old Brightman Street Bridge are readily apparent and are of special concern in terms of environmental (socio-economic) impacts.

- a. **Increased openings of the Old Brightman Street Bridge:** Currently, the old Brightman Street Bridge opens approximately 900 times per year to allow commercial and recreational traffic to pass. At 130 additional LNG deliveries per years, that would equate to about 520 additional openings of the old Brightman Street bridge, computed as follows:

There would be at least four openings per delivery of product by an LNG vessel.

- (1) For an inbound transit, the old Brightman Street Bridge would open to permit passage of the LNG vessel, tugs, and security escort vessels, and then close.
- (2) After the LNG vessel is safely moored at the Weaver's Cove facility, the bridge would again open to permit passage of tugs that had been tending to the LNG vessel.
- (3) For outbound transits, the bridge would open to allow tugs passage north toward the Weaver's Cove facility and then close.
- (4) The bridge would reopen when the outbound LNG vessels with tugs required passage.

Note: This does not account for any bridge openings that may be required to permit passage of security or logistics vessels while the LNG vessels is pierside and off-loading product at the Weaver's Cove facility.

- b. The expected additional 520 (plus) bridge openings of the old Brightman Street Bridge annually over the current average of 900 openings, represents an increase of at least 58%. Given the age and condition of that bridge, particularly the bascule mechanisms, and considering the current maintenance required of the Massachusetts Highway Department to keep the bridge operating to meet its current demand, the

impact on the reliability of the bascule's opening mechanism may need to be addressed.

- c. The safety and security zone encompassing the tanker would effectively stop recreational traffic in the Taunton River for its transit through the old and new Brightman Street bridges, a period of time that needs to be re-assessed in light of the retention of the old Brightman Street Bridge and smaller tanker proposal.
- d. A comprehensive assessment of access to a proper and safe area of refuge in the case of a fire emergency has not been provided. The turning basin off of the Weaver's Cove facility appears to be the primary proposed location to move a vessel in an emergency. In the case of a fire involving an LNG vessel's cargo, the turning basin location may place vessels moored at the Somerset (formerly Montaup) power plant, the power plant itself, and coal stored at the power plant at risk. The identification of the turning basin between Weaver's Cove and the Somerset power plant as the refuge for an LNG ship fire emergency would need to be supported with regard to the expected radiant heat flux emanating from an LNG tanker fire.
- e. The waterway and economic impact of the smaller tanker proposal on the sailing, yacht-racing, recreational boating and cruise ship activities prevalent in the Newport/lower Narragansett Bay area, with 130 arrivals (and 260 transits), is not adequately accounted for in the information submitted by Weaver's Cove. Consequently, the Coast Guard will require further review of these impacts.